

**APPENDIX 2 TO SCHEDULE 3.3
TO THE
COMPREHENSIVE INFRASTRUCTURE AGREEMENT
INTERNAL APPLICATIONS SERVICES SOW**

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This is Appendix 2 (Internal Applications Services SOW) to Schedule 3.3 (Statements of Work) to the Comprehensive Infrastructure Agreement between the Commonwealth and Vendor (the "Agreement"). Unless otherwise expressly defined herein, the capitalized terms used herein shall have the meaning assigned to them in Appendix 11 (SOW Definitions) to Schedule 3.3 or in the Agreement.

1.0 Internal Applications Services Overview and Objectives

This Appendix 2 (Internal Applications Services SOW) is the Statement of Work (or "SOW") that sets forth the roles and responsibilities of the Parties for the application services ("Application Services") provided under the Agreement as part of the Services. Application Services are the services and activities, as further detailed in this SOW, required to provide the Commonwealth with the following general Services:

Application Development - Activities associated with development of new applications and major enhancements. Application Services are classified as "Application Development Services" when the work effort is estimated for a duration of greater than 20 Person-days.

Application Warranty Services - Activities associated with repairing errors/defects for Vendor developed application(s) or enhancements that are discovered within ninety (90) Business Days after the application(s) or enhancements being placed into the applicable production environment.

Application Maintenance Services - Activities associated with repairing defects and developing minor functional enhancements. Application Services are classified as "Application Maintenance Services" when the work effort is less than 20 Person-days for production application programs and Systems.

In addition to the services described in this SOW, the Vendor is responsible for providing the services described in Appendix 1 (Cross-Functional Services SOW) to Schedule 3.3.

1.1 Service Objectives

The key high-level Service objective that the Vendor shall provide for the Commonwealth through the Application Services is to provide accurate and timely support for in-scope internal administration systems used by VITA for managing delivery and chargeback of VITA services.

2.0 Service Environment

2.1 Scope of the Infrastructure to be Supported

This paragraph describes the scope of Services described in Section 2. This includes assets, facilities and locations, personnel, policies and procedures, licenses and agreements and work-in-process. Schedules and attachments are associated with each section to allow for quarterly updates and changes. The following sub-sections and related SOW Addenda further describe and scope a number of Application Services elements to be supported and/or with which Vendor shall comply. Service Environment Addenda are to be maintained by Vendor, reviewed with VITA, updated by Vendor and made available to VITA on a quarterly basis.

2.1.1 Applications to be Supported

All existing VITA applications, programs, and databases included in the scope of this agreement are identified as Internal Applications in Schedule 28.17 (Commonwealth Software).

2.1.2 Personnel

Vendor will be responsible for providing appropriately skilled staffing for the Application Services environment to meet the Roles and Responsibilities and Service Levels set forth in this SOW.

2.1.3 Service Locations

- a. Support Services for the Internal Applications will be provided in facilities within VITA-specified facilities located within the geographical boundaries of the Commonwealth.
- b. As development phases of various VITA applications are completed, Internal Applications may be deployed to support geographically dispersed Commonwealth facilities. Vendor shall provide staffing resources to support these implementation activities as required by VITA.
- c. A listing of Commonwealth facilities within which Application Services shall be provided as specified in Addendum 1 – VITA-Specified Commonwealth Facilities.

2.1.4 Vendor Facilities

- a. In the event that Vendor performs any Application Development Services in facilities other than the Commonwealth facilities stated in Section 2.1.3 above, then Vendor will be responsible for providing all necessary facilities for its development teams to perform such Application Development Services. Additionally, Vendor shall establish an area within its facilities, dedicated for use for the Commonwealth development environment that is physically and logically separated, secured and protected from access to any and all individuals not directly working on Commonwealth projects. This area must be fully fire and environmentally protected and backed up at all times.

- b. Vendor shall, as required in Section 3.9 of the Agreement, establish, document and demonstrate a robust Disaster Recovery Plan for any such facilities set forth in Section 2.1.4 above.
- c. Vendor shall use existing in-scope, or otherwise obtain and/or provide the necessary development hardware and software operating and application platform infrastructure, application development tools, testing tools, change and configuration management tools, project management and reporting tools, and other hardware and software (the “Development Environment Components”) required to establish and support the Application Development Product(s) development and testing environment within the Vendor facilities. This includes appropriately sized hardware, as well as appropriate license quantities, types and revision levels of Application Development, testing and runtime environment software. If the Vendor does not already have the appropriate Development Environment Components within its designated development facilities, the Vendor shall acquire the Development Environment Components.

Provided such Development Environment Components are generic components that are not proprietary to, restricted for use with, and/or unique to the Commonwealth Application Development Product(s) business environment, Vendor shall provide all such Development Environment Components at no charge to the Commonwealth.

In the event that any Development Environment Components are non-generic or are otherwise proprietary, restricted and/or unique to the Commonwealth development environment, then VITA and Vendor shall determine an equitable method for the acquisition and disposition of such components.

To the extent appropriate, Development Environment Components shall be dedicated for use on the Commonwealth Application Development Product(s) environment for the duration of the development project.

- d. Commonwealth specific development environment components are provided in Addendum 2 – Specific Development Environment Components.
- e. Commonwealth generic development environment components are provided in Addendum 3 – Generic Development Environment Components.

2.1.5 Policies, Procedures and Standards

- a. A description of the applicable policies, procedures, standards and regulatory compliance requirements with which Application Services will comply is provided in Schedule 13 (Commonwealth Policies) to the Agreement and in the Procedures Manual; and
- b. Internal Application development tools, database and Middleware standards are provided in the Procedures Manual.

2.1.6 Agreements and Licenses

A list of existing Internal Application related agreements and licenses is provided in Schedule 2.2 (Contracts).

2.1.7 Current Projects

The Commonwealth currently has a number of Applications-related Current Projects planned or in progress that are included in the scope of this Appendix and are the responsibility of Vendor to complete within the time frames specified by the Commonwealth. A list of these projects is provided in Schedule 28.29 (Current Projects).

3.0 Application Services

3.1 Application Development Services Roles & Responsibilities

The applicability of a given role and responsibility of this Section 3.3 to a given project shall be determined mutually by the Parties given the nature of the specific project.

3.1.1 Application Strategy, Architecture and Planning

Application Strategy, Architecture and Planning Services are the activities associated with setting overall Application Strategy, high level Application Architecture and planning associated with the Application Portfolio. Architecture services are comprised of maintaining the Application, Data and Integration Architectures.

The following table identifies roles and responsibilities associated with Application Strategy, Architecture and Planning activities. An “X” is placed in the column under the Party that will be responsible for performing the task. Vendor responsibilities are indicated in the column labeled “Vendor”.

Table 1. Application Strategy, Architecture and Planning

Application Strategy, Architecture and Planning Roles and Responsibilities	Vendor	VITA
Application Architecture Roles and Responsibilities	Vendor	VITA
1. Maintain “End State” Internal Application architecture		X
2. Develop and maintain Internal Application roadmap		X
3. Develop and maintain release specific Internal Application architecture		X
4. Participate in Internal Application architecture planning and recommend Internal Application architecture design	X	
5. Document functional architecture		X
6. Identify application integration architecture		X
7. Identify data conversion architecture		X
8. Evaluate and recommend software technologies, packages, and tools within the framework of this SOW as required	X	
9. Review and approve recommended software technologies, packages, and tools within the framework of this SOW as required		X
10. Conduct feasibility studies for the implementation of new technologies	X	
11. Review and approve results of feasibility studies		X
12. Provide architecture consulting to Eligible Customers and approval of architectural components of proposed projects		X

Application Strategy, Architecture and Planning Roles and Responsibilities	Vendor	VITA
13. Participate in architecture review of proposed projects	X	
14. Collaborate with infrastructure architecture team	X	
15. Manage and approve Internal Applications architecture standards and review process		X
Data Architecture Roles and Responsibilities	Vendor	VITA
16. Develop and maintain VITA high level (e.g., entity v. field) logical data model for transactional and reporting requirements		X
17. Develop and maintain physical database	X	
18. Evaluate Internal Application package data models against VITA requirements	X	
19. Review results of Internal Application package data model evaluations		X
20. Recommend appropriate master data standards to support the VITA applications	X	
21. Review and approved master data standards		X
Application Integration Roles and Responsibilities	Vendor	VITA
22. Develop and maintain G2G/G2B/G2C integration architecture		X
23. Develop and maintain Enterprise Application Integration (EAI) architecture		X
24. Provide G2G/G2B/G2C and EAI consulting	X	
25. Evaluate and recommend software technologies, packages, and tools within the framework of this SOW as required	X	
26. Review and approve recommended software technologies, packages, and tools within the framework of this SOW as required		X
27. Conduct feasibility studies for the implementation of new technologies	X	
28. Review and approve results of feasibility studies		X
Application Software License Management Roles and Responsibilities	Vendor	VITA
29. Manage software license inventory	X	
30. Manage Vendor software license inventory and report to VITA on a semi-annual basis	X	
31. Manage software budget for licenses and recurring maintenance agreements		X
32. Negotiate software licenses and maintenance contracts	X	
33. Approve negotiated license and maintenance contracts		X
34. Manage software vendor relationships	X	
35. Manage all IT contract services that are not the responsibility of Vendor within the framework of this SOW		X

3.1.2 Planning and Analysis

Planning and Analysis Services are the activities associated with the research of new Application Development Services trends and include investigation of opportunities to improve the efficiency and effectiveness of Internal Applications. The following table identifies the roles and responsibilities that Vendor and VITA will perform.

Table 2. Planning and Analysis Roles and Responsibilities

Planning and Analysis Roles and Responsibilities	Vendor	VITA
1. Develop process re-engineering methodologies and recommendations	X	
2. Review and approve process re-engineering methodologies		X
3. Conduct semiannual technical reviews and review with VITA	X	
4. Monitor technical trends through independent research; document and report on products and services with potential use for VITA	X	
5. Perform business liaison function to Eligible Customers		X
6. Perform business planning for capacity and performance		X
7. Recommend overall systems development process improvements	X	
8. Performing an annual portfolio analysis to identify and recommend applications rationalization, consolidation, sunseting, etc.	X	
9. Conduct annual technical and business planning sessions to establish standards, architecture and project initiatives		X
10. Participate in annual technical and business planning sessions to establish standards, architecture and project initiatives	X	
11. Perform application operational assessments for capacity and performance purposes	X	
12. Perform application security planning		X
13. Recommend potential improvements to application security architecture	X	
14. Perform application security planning for development tasks	X	
15. Identify possible product and software tool enhancement opportunities for improved performance and potential cost savings	X	
16. Performing project estimation using a commercial project estimation tool that can size application projects and can categorize them by level of effort (e.g., minimal, medium, difficult)	X	
17. Approve projects to implement		X

3.1.3 Requirements Definition

Requirements Definition Services are the activities associated with the definition and assessment of End-User requirements that are used to determine detailed application design. The following identifies the roles and responsibilities that Vendor and VITA will perform.

Table 3. Requirements Definition Roles and Responsibilities

Requirements Definition Roles and Responsibilities	Vendor	VITA
1. Act as primary point of contact with the business to define, gather, refine, and prioritize business requirements.		X

Requirements Definition Roles and Responsibilities	Vendor	VITA
2. Develop and document business requirements		X
3. Approve business requirements documents		X
4. Conduct interviews, group workshops and surveys to determine technical, functional and End-User requirements	X	
5. Develop functional requirements documents, logical and physical data models	X	
6. Conduct value assessments of functional requirements and generate an impact analysis, including affected systems, alternative design scenarios, etc.	X	
7. Approve all functional requirements		X
8. Identify need for software upgrade conversion requirements for Commercial Off-The-Shelf (COTS) hardware and software and execute based upon a Service Request from VITA	X	
9. Approve software upgrade conversion requirements for COTS hardware and software		X
10. Recommend application test plan (e.g., functional, volume, end-to-end, integration, stress, regression, System, and End-User acceptance test if applicable)	X	
11. Develop application test plan (e.g., functional, volume, end-to-end, integration, stress, regression, System, and End-User acceptance test if applicable)	X	
12. Approve application test plan (e.g., functional, volume, end-to-end, integration, stress, regression, System, and End-User acceptance test if applicable)		X
13. Define local adaptation deployment criteria and delivery requirements		X

3.1.4 Design Specifications

Design Specification Services are the activities required to produce design specifications that meet Commonwealth technical architectural standards and identify and describe the most cost-effective solution to the implementation option under consideration. Vendor application design process and specifications shall:

- a. Incorporate Commonwealth's architectural guidelines into the design, including application extensibility, maintainability, scalability, robustness and reliability; and
- b. Be governed by VITA oversight and obtain VITA approval through coordination with the appropriate architectural or technical oversight authority.

The following tables identify roles and responsibilities that Vendor and VITA will perform.

Table 4. High-Level Design Activities Roles and Responsibilities

High-Level Design Activities Roles and Responsibilities	Vendor	VITA
1. Create the high-level design document from the business and functional requirements	X	
2. Review and approve high-level design documents		X

High-Level Design Activities Roles and Responsibilities	Vendor	VITA
3. Evaluate COTS package solutions	X	
4. Conduct COTS application evaluations to demonstrate support of requirements	X	
5. Participate in application evaluation demonstrations		X
6. Develop prototype application configuration settings to demonstrate support of requirements	X	
7. Approve prototype application configuration settings that demonstrate support of requirements		X
8. Provide high level requirements/criteria for extending prototyped application configuration settings to the full complement of configuration settings required to satisfy the complete business process		X
9. Provide application configuration instructions that support the prototype application configuration settings		X
10. Provide high-level logical data model		X
11. Provide high level design documentation that supports design requirements	X	
12. Approve planned technology to support application		X
13. Provide application development and implementation cost and schedule estimates, including all applicable equipment & support costs	X	
14. Develop overall project cost and schedule estimate where necessary		X
15. Develop "Program Expenditure Request" and acquire approval where necessary		X

Table 5. Detailed Design Activities Roles and Responsibilities

Detail Design Activities Roles and Responsibilities	Vendor	VITA
1. Define design standards and documentation	X	
2. Agree to design standards and documentation		X
3. Provide availability of Commonwealth business and technical resources		X
4. Conduct site surveys for design efforts as required by requirements document.	X	
5. Create the detailed design document from the business and functional requirements and high-level design	X	
6. Create design to contain security features in compliance with VITA and Commonwealth Security Policies, including external and Commonwealth role-based security models	X	
7. Provide planned technology design that specifies all components, program modules, data stores, interfaces, interface components and associated operations procedures for the application	X	

Detail Design Activities Roles and Responsibilities	Vendor	VITA
8. Document and present implementation options evaluated as required by the requirements document to support the VITA custom code process	X	
9. Review and approve detailed design documentation		X
10. Document technical requirements, logical and physical data models	X	
11. Review and approve technical requirements and physical data models for consistency with documented requirements		X
12. Develop test cases as defined in testing plan	X	
13. Approve test cases		X
14. Define implementation and deployment policies, project schedules and staffing requirements to meet deployment and delivery requirements	X	
15. Approve implementation, deployment policies, schedules and deployment staffing levels as appropriate		X
16. Provide revised application development and implementation cost and schedule estimates	X	
17. Develop revised overall project cost and schedule estimate where necessary		X

3.1.5 Programming/Development

Programming/Development Services are the activities associated with the programming, development, scripting, configuring or customizing of application modules using the information from the previous phases as critical input. Programming and development can be accomplished by in-house custom development, customization of commercial off-the-shelf (COTS) products or implementation of COTS packages. The following table identifies the roles and responsibilities that Vendor and VITA will perform.

Table 6. Programming/Development Roles and Responsibilities

Programming/Development Activities Roles and Responsibilities	Vendor	VITA
1. Review VITA and Commonwealth existing technical standards (e.g., naming, JCL)	X	
2. Recommend programming, development, and technical documentation policies, procedures, and standards in conformance to SEI requirements where applicable	X	
3. Review and establish programming, development, and technical documentation policies, procedures, and standards		X
4. Review programming and development plans and procedures where there is an impact on Eligible Customers		X
5. Establish overall programming and development project schedule	X	
6. Provide overall programming and development module delivery schedule for VITA acceptance	X	
7. Approve overall programming and development module delivery schedule		X

Programming/Development Activities Roles and Responsibilities	Vendor	VITA
8. Perform all necessary technical design, programming, development, unit and string testing, scripting, configuring or customizing of application modules as required to develop and implement the design plans and specifications	X	
9. Perform application data base administration functions	X	
10. Recommend modifications and performance-enhancement adjustments to VITA System Software and utilities based on VITA and Commonwealth performance standards	X	
11. Manage all programming and development efforts using industry-standard project management tools and methodologies	X	
12. Conduct predetermined development status reviews and provide written reports on results to VITA	X	
13. Review results of Vendor development reviews at VITA's discretion		X

3.1.6 Integration and Testing

Integration and Testing Services are the activities associated with the confirmation that the individual program components work together properly and as a whole perform their specified functions. This includes application interfaces to other applications already in production at or being developed by the Commonwealth or outside parties as stated in the requirements documents. In addition to the acceptance testing obligations set forth in Section 7 of the Agreement, the following identifies the roles and responsibilities that Vendor and VITA will perform.

Table 7. Integration and Testing Roles and Responsibilities

Integration and Testing Activities Roles and Responsibilities	Vendor	VITA
1. Approve all integration, End-User acceptance and application security testing plans for new and upgraded equipment, software and services		X
2. Create test cases, test data and perform all appropriate testing (e.g., unit testing, end-to-end testing, stress testing, regression testing, integration testing)	X	
3. Create test environment and data where required by project, including demonstration of requirements traceability to verify the requirements as specified in the requirements document have been satisfied	X	
4. Review and approve test environment and data sets to be used		X
5. Coordination of End-User acceptance and assurance testing (e.g., gain End-User involvement, establish and define Acceptance Criteria, set high-level test objectives, establish high level test scenarios)		X
6. Facilitate and support End-User acceptance test (establishing adequate test environment based on End-User Acceptance Criteria, preparing data to support test scenarios within modified system as well as managing the relationship with all interfaced systems necessary to conduct test, troubleshooting, support users to progress through scenarios, simulating interfaces or working with integrated systems to conduct end-to-end tests, support batch processing, exercise functionality, and report results) as prescribed by VITA	X	

Integration and Testing Activities Roles and Responsibilities	Vendor	VITA
7. Conduct End-User acceptance testing		X
8. Validate all new and upgraded software and services for compliance with VITA and Commonwealth Security Policies and instructions		X
9. Manage the VITA functional, integration, and regression test environments and associated test data including creation and maintenance during the testing period	X	
10. Review testing results for compliance with policies, procedures, plans, Acceptance Criteria and metrics (e.g., defect rates, progress against schedule)		X
11. Provide shared access to the mutually agreed to defect tracking system for purposes of allowing VITA to initiate, track, and report Commonwealth-found defects (i.e., End-User acceptance testing).	X	
12. Notify Vendor in the event Commonwealth notices a discrepancy between Commonwealth's requirements and the requirements document or Vendor Deliverables		X
13. Correct defects found as a result of testing efforts	X	
14. Conduct selective random independent testing, where the random selection includes some complex modules (i.e., independent verification and validation testing)		X
15. Staging Systems before implementation	X	
16. Approve implementation of Systems		X

3.1.7 Implementation and Migration

Implementation and Migration Services are the activities associated with the installation and migration of new and/or upgraded components to the production environment as well as Services for providing support for development of localization to region- or state-specific business practices and local, legal, regulatory and statutory needs. In addition to the compatibility and integration obligations set forth in Section 3.14 of the Agreement and in Appendix 1 (Cross-Functional SOW) to Schedule 3.3, the following table identifies the roles and responsibilities that Vendor and VITA will perform.

Table 8. Implementation and Migration Roles and Responsibilities

Implementation and Migration Activities	Vendor	VITA
1. Develop End-User policies and procedures documentation		X
2. Deliver End-User policies and procedures documentation		X
3. Implement local adaptations to technical architecture or services provided	X	
4. Install new or enhanced functions or features—hardware, software, peripherals, configurations and System management tools where applicable	X	
5. Conduct pre-installation site surveys, including validation of site-specific functionality as defined in the requirements document(s)	X	
6. Assist VITA in support, implementation and deployment of Internal Applications and platform environment in all Commonwealth geographies as defined in the requirements document(s) and/or a Service Request	X	

Implementation and Migration Activities	Vendor	VITA
7. Coordinate deployment and support activities with Eligible Customers as directed by VITA	X	
8. Perform data migration from existing Systems to new Systems, by either electronic or manual methods	X	
9. Conduct post implementation End-User acceptance		X
10. Provide System and End-User documentation	X	
11. Create detailed "Technical Go-Live" plan	X	
12. Create "go/no-go" checklist and conduct the "go/no-go" meetings		X
13. Approve production implementation "go/no-go" decisions		X
14. Deploy System	X	

3.1.8 Code Migration

Code Migration Services are the activities associated with promoting new and modified code, configuration and scripts, in support of new and existing applications through development, test and production. The following table identifies the roles and responsibilities that Vendor and VITA will perform.

Table 9. Code Migration Roles and Responsibilities

Code Migration Roles and Responsibilities	Vendor	VITA
1. Recommend operations and administration procedures related to Code Migration	X	
2. Approve operations and administration procedures related to Code Migration		X
3. Define test-to-production turnover requirements and instructions for each project or release		X
4. Approve test-to-production turnover requirements and instructions via Change Management Group		X
5. Report on results from test-to-production activities if applicable	X	
6. Review reports on test-to-production results		X
7. Migration of code from development to test on an agreed upon basis	X	
8. Track migration status and notification	X	
9. Escalate and resolve issues with Vendor Services delivery team and development teams	X	
10. Participate in environment setup & decommissioning for new and changed environments	X	
11. Migrate defect correction code	X	

3.1.9 Software Configuration Management

Software Configuration Management Services are the activities associated with the identification and maintenance of System components and the relationships and dependencies among them. Such activities include:

- a. Automatic capture and storage of application-to-component and component-to-component relationships; and
- b. Maintenance of the history of those relationships and transformations required to appropriately manage and document (e.g., source control, version control, profiles, security plans) configuration changes affecting the application and its processing environment.

The following identifies the roles and responsibilities that Vendor and VITA will perform.

Table 10. Software Configuration Management Roles and Responsibilities

Software Configuration Management Activities Roles and Responsibilities	Vendor	VITA
1. Define configuration management policies and procedures consistent with the SEI CMM Software Configuration Management Key Process Area (KPA)	X	
2. Review and approve configuration management policies and procedures		X
3. Perform configuration management activities throughout the development process	X	
4. Review configuration management results		X

3.1.10 Application Change Management

Application Change Management (ACM) Services are the activities required to appropriately manage and document (e.g., impact analysis, version control, library management, turnover management, build management, parallel development) changes to the application(s) and any of the constituent components being developed. All ACM activities will be conducted in accordance with Section 3.1.4.4 Change Management and Release Management of the Cross-Functional Services SOW. ACM also includes Services required to appropriately manage and document changes to the underlying application development environment components. These include the following:

- a. Library Management—the classification, control and storage of the physical components of an application;
- b. Version Control—the maintenance, tracking and auditing of modifications to an application's components over time, facilitating the restoration of an application to prior development stages; and
- c. Turnover Management—the automated promotion of Software changes across different phases of the life of the application (e.g., development, unit test, Systems test and production), including management of the approval process, production turnover and software migration control.

Any changes to the baseline project plan or committed maintenance or enhancement dates must be managed by the ACM process and approved by VITA. The above process shall include formal and documented ACM procedures, and define the paperwork, tracking systems and approval levels necessary to authorize changes (e.g., a change to the scheduled end date for a particular Deliverable). The most-common form of documentation is a project change request (PCR), which is a standard form

describing the type of change/issue, the rationale behind it, and related schedule and cost changes.

The following table identifies the roles and responsibilities that Vendor and VITA will perform.

Table 11. ACM Roles and Responsibilities

ACM Roles and Responsibilities	Vendor	VITA
1. Recommend procedures associated with VITA authorized PCRs	X	
2. Review and approve the PCR process		X
3. Authorize change in project scope and design		X
4. Review maintenance production release plan and schedules		X
5. Manage all Service Requests to production		X
6. Ensure custom code approvals are received from the designated VITA IT personnel	X	
7. Assist VITA with documentation and communicate change management processes and procedures	X	
8. Participate in scheduling releases	X	
9. Manage documentation changes to the underlying application development environment via use of library management version control and turnover management as described above	X	
10. Provide impact analysis associated with proposed project changes	X	
11. Manage changes to the baseline, project plan, or committed maintenance or enhancement dates		X
12. Prepare VITA System change request	X	
13. Approve System changes		X

3.1.11 Training and Knowledge Transfer

Training and Knowledge Transfer Services are the activities are defined in Section 3.1.2.9 Training and Knowledge Transfer of the Cross-Functional Services SOW. The following Training and Knowledge Transfer activities are in addition to those set forth in such section of the Cross-Functional Services SOW. The following table identifies activities and roles and responsibilities that Vendor and VITA will perform.

Table 12. Training and Knowledge Transfer Activities Roles and Responsibilities

Training and Knowledge Transfer Activities Roles and Responsibilities	Vendor	VITA
1. Develop training and knowledge transfer plan in the project plan	X	
2. Approve training and knowledge transfer plan in the project plan		X
3. Provide technical training assistance and knowledge transfer to VITA support personnel, during deployment as requested	X	

Training and Knowledge Transfer Activities Roles and Responsibilities	Vendor	VITA
4. Provide training materials related to the technical aspects of the application to VITA as applicable	X	
5. Provide End-User training content for Internal Applications		X
6. Review and validate training materials		X
7. Provide continuing End-User training for improving “how-to-use” skills related to Systems and Internal Applications	X	
8. Create and maintain Commonwealth Internal Application training instances or clients as required by VITA	X	
9. Provide Help Desk agent training, including developing dialogue scripts	X	

3.1.12 Documentation

Documentation Services are the activities associated with developing, revising, maintaining, reproducing and distributing information in hard copy and electronic form that is performed as part of a Service Request. Documentation related to Application Services includes:

- a. System specifications and documentation;
- b. End-User documentation;
- c. Site and System security plans; and
- d. Updates and release notes.

The following table identifies the roles and responsibilities that Vendor and VITA will perform.

Table 13. Documentation Roles and Responsibilities

Documentation Roles and Responsibilities	Vendor	VITA
1. Recommend specifications and Documentation format and content per SEI requirements	X	
2. Approve Documentation format and content		X
3. Provide system specifications and Documentation	X	
4. Develop operational processing flow	X	
5. Provide System installation, support, configuration and tuning manuals	X	
6. Provide application hardware and System Software requirements documentation	X	
7. Provide logical and physical data model	X	
8. Provide End-User documentation		X
9. Provide System and application security procedures	X	
10. Provide standard operating procedures	X	
11. Prepare updates and release notes	X	
12. Deliver updates and release notes to End-Users as necessary		X

Documentation Roles and Responsibilities	Vendor	VITA
13. Document version control for all documentation for which Vendor is responsible	X	
14. Provide documented application disaster recovery process	X	
15. Approve documented application disaster recovery process		X
16. Approve documentation delivered		X

3.2 Application Warranty Services

Application Warranty Services are the activities associated with repairing errors/defects for Vendor developed application(s) or enhancements that are discovered within 90 days of the application(s) or enhancements being placed into the applicable production environment ("Warranty Period"). Application Warranty Services include the applicable support activities described in Section 3.3 below, as well as any activities necessary to repair errors/defects to enable application programs and enhancements to perform in accordance with the documented specifications and documented operational functionality, as described in Section 3.1 above.

Vendor will repair code developed by Vendor at no charge to Commonwealth provided that:

- (i) The Problem is classified as a Priority 1, Priority 2, or a Priority 3 Level Incident; and/or
- (ii) The Root Cause Analysis indicates the Problem was introduced by code or configuration created by or on behalf of Vendor, and (a) or (b)
 - a. The Problem is in an application program where the responsibility is transferred from the Commonwealth to Vendor, and the Problem is the result of Vendor not following the Vendor development processes set forth in the Procedures Manual; or
 - b. The Problem is in an application program developed by or on behalf of Vendor or a third party application program used by the Vendor and the Problem is the result of Vendor not following the Vendor development processes set forth in the Procedures Manual.

Full correction of the application(s) defect is to be completed by Vendor unless otherwise approved by VITA, and the corrected code shall be appropriately tested to verify that no regression errors are introduced.

Application Warranty Services include updating all appropriate documentation. Vendor will provide monthly reports showing the amount of work conducted under warranty (number of defects and hours to correct).

3.3 Application Maintenance Services

Application Maintenance Services are the activities associated with repairing defects and developing minor functional enhancements (20 Person-days or less) for production application programs and Systems. Application Maintenance Services include all support activities

described in Section 3.1 above, as applicable. Additionally, Application Maintenance Services consist of the Services described in the following subsections.

3.3.1 Corrective and Emergency Maintenance

Corrective and Emergency Maintenance Services are the activities associated with the repair of defects not identified during the Warranty Period to enable applications that are in production to provide the required functionality and to meet Service Levels. Full recovery of the application(s) is to be completed unless otherwise approved by VITA and is to cover files/deliverables, such as:

- a. End-User interface changes;
- b. Changes to System interfaces;
- c. Application functional changes;
- d. Recommend database changes related to enhancements;
- e. Modification to standard query structure; and
- f. Report development.

3.3.2 Preventive Maintenance

Preventative Maintenance Services are the activities associated with addressing events, which if not addressed proactively, could impact applications in production, such as:

- a. Changing business volumes;
- b. Staying on the most current release or as directed by VITA;
- c. Application of System patches;
- d. Proactive performance tuning;
- e. Proactive archiving;
- f. Pre-production execution simulation; and
- g. Special testing for events, such as:
 - Commonwealth-observed holidays
 - End of financial year
 - End of calendar year
 - Daylight savings time.

3.3.3 Adaptive Maintenance

Adaptive Maintenance Services are the activities associated with ensuring that application performance is not affected by changes to interfacing applications, new applications or packages and technical environment changes, which if not addressed proactively, could impact applications in production, such as:

- a. Upgrades of operating software;
- b. New/changed equipment; and

- c. Interface changes.

3.3.4 Perfective Maintenance

Perfective Maintenance Services are the activities associated with ensuring that applications operate at peak efficiency with particular focus on areas such as:

- a. System CPU hours;
- b. General performance tuning;
- c. Storage space;
- d. Response Time of the Application;
- e. Archiving; and
- f. Database performance tuning.

3.3.5 Release Packaging

Release Packaging Services are the activities associated with the packaging of Software changes into suitable releases, by application, as approved by VITA. Software version control, both electronic and manual, is included. Regularity of releases could vary depending upon size and urgency of individual changes regarding risk mitigation. Vendor shall develop and obtain VITA's approval of the ongoing process for the implementation of a 12-month rolling application release timetable (with associated variation mechanism).

3.3.6 Technical and End-User Support

Technical and End-User Support Services are the activities associated with expert technical assistance required for the tuning of support applications and utilities for optimal System performance. Also included is expert Level 2 technical assistance for the Help Desks for End-Users and IT professionals.

The following table identifies the roles and responsibilities that Vendor and VITA will perform.

Table 14. Technical and End-User Support Roles and Responsibilities

Technical and End-User Support Roles and Responsibilities	Vendor	VITA
1. Recommend maintenance and repair policies and procedures	X	
2. Review and approve maintenance and repair policies and procedures		X
3. Review and approve "Application Maintenance Plan", including any and all revisions to the "Application Maintenance Plan" (e.g., committed and proposed work schedules)		X
4. Execute "Application Maintenance Plan" for all categories of Application Maintenance Services (e.g., minor functional enhancements, Corrective Maintenance, Preventative Maintenance, Adaptive Maintenance, and Perfective Maintenance) as described above	X	
5. Provide technical and functional support to VITA IT Application Development Group and other groups as directed by VITA	X	

Technical and End-User Support Roles and Responsibilities	Vendor	VITA
6. Notify VITA of changes and upgrades to 3 rd party application Systems	X	
7. Perform diagnostics on Software and Services	X	
8. Perform routine System management on applications	X	
9. Recommend DBMS tuning changes	X	
10. Provide Corrective Maintenance	X	
11. Provide Preventive Maintenance	X	
12. Provide Adaptive Maintenance	X	
13. Provide Perfective Maintenance	X	
14. Provide release packaging of Software changes	X	
15. Approve release packaging of Software changes		X
16. Assist Help Desk with coordination of End-User support activities	X	
17. Respond to escalated trouble ticket items in accordance with established procedures	X	
18. Define ad hoc reporting requirements		X
19. Provide support for VITA and End-User ad hoc reporting requirements	X	
20. Establish Priority Levels of Service Requests		X
21. Follow Change Management Procedures associated with maintenance and support	X	
22. Coordinate Service delivery with Help Desks, as well as other support groups within each of the other Towers in coordination with Eligible Customers, VITA, and all appropriate third-parties, as necessary	X	

3.4 Monitoring, Reporting and Review Services

Monitoring, Reporting and Review Services are the activities associated with the ongoing health checks, status reporting, and Problem Management (ongoing surveillance, tracking, escalation, resolution, and tracking of Problems) of application support activities. Problem Management activities described within this document require the Vendor to provide Level 2 and Level 3 technical support in coordination with the Help Desks. The following table identifies the roles and responsibilities that Vendor and VITA will perform.

Table 15. Monitoring, Reporting and Review Roles and Responsibilities

Monitoring, Reporting and Review Roles and Responsibilities	Vendor	VITA
1. Provide, maintain and update project plans, identifying critical path dependencies, major Critical Milestones, Deliverables, "project earned value" as mutually agreed upon by the Parties for selected projects.	X	
2. Provide status reviews and progress reports as required by VITA for selected mutually agreed to projects	X	
3. Provide monthly Service Level performance reports against each Service Level, including trends for each and summary view	X	
4. Provide monthly milestone achievement review and performance reports	X	

Monitoring, Reporting and Review Roles and Responsibilities	Vendor	VITA
5. Provide an electronic copy of the applications inventory being maintained by Vendor	X	
6. Provide mutually agreed to reports to enable invoice reconciliation	X	
7. Provide mutually agreed to reports that capture Service Requests demand and measure of ability to satisfy demand	X	
8. Provide mutually agreed to reports that represent general health of environments (e.g., number of stranded transports, patches not yet applied) as well as reports that represent demand fulfillment in End-User terms (e.g., defect corrections/change requests that have slipped against commitment, backlogged defects/change requests, Priority Level 1, 2, and 3 defects).	X	
9. Define Service Levels, Problem Priority Levels, and reporting cycles		X
10. Measure and analyze performance relative to requirements	X	
11. Develop improvement plans for Services that do not meet Service Levels	X	
12. Review improvement plans		X
13. Implement improvement plans	X	
14. Provide Service Request Response Time management reports (including a trend line) for new development work that reflects time to provide time and cost estimates	X	
15. Report productivity per developer/tester month by application (i.e., number of lines of code or function points), including trend line. Granularity of report metrics (new work v. maintenance) shall be mutually agreed. Targets shall be set within ninety (90) days of the Service Commencement Date	X	
16. Report on average defect Response Time by Priority Level	X	

3.5 Exclusions

The following items are specifically excluded from this SOW:

Development and support for Business Software applications used by the Eligible Customers to manage and run the day-to-day business processes and operations of their respective business units (e.g., ERP, HR, finance and accounting,

3.6 Service Specific Milestones

Milestones specific to the transition and deployment of Internal Applications Services are identified in Schedule 3.2 to the Agreement.

3.7 Statement of Technical Approach

Vendor's technical approach for the Services under this SOW shall, at a minimum, be consistent with and similar to the technical approach described in Addendum 4 to this SOW. Vendor shall, at any time during the Term, make minor modifications to its technical approach, so long as such modifications are consistent with and similar to the technical approach described in Addendum 4, without executing a formal contract modification.

4.0 Service Management

4.1 Objectives

A key objective of the Agreement is to attain Service Levels with Performance Credits where business is impacted through failure to meet significant mission critical Systems or Services, Critical Milestones or objectives, or when Service performance requirements are not met. Service Levels are detailed in the following sections and those associated with Performance Credits are identified in Schedule 3.12 (Service Level Methodology) of the Agreement.

Vendor shall provide written reports to VITA regarding Vendor's compliance with the Service Levels specified in this SOW.

4.2 Definitions

Appendix 11 to Schedule 3.3 (Statements of Work) of the Agreement provides a list of terms that apply to this SOW and following Service Levels.

4.3 Service Level Requirements

The following minimum Service Levels are required commencing on the date set forth in Schedule 3.12 (Service Level Methodology) of the Agreement. Vendor must consistently meet or exceed the following Service Levels. The Service Level methodology and the identification of Service Levels associated with Performance Credits are detailed in Schedule 3.12 (Service Level Methodology) of the Agreement. **All times referenced are in Eastern Time.**

Table 16. Application Development Service Levels

DEFINITION	<p>Application Development Service Levels cover:</p> <ul style="list-style-type: none"> a. Project Management tools and practices employed by Vendor for managing the Application Development work effort estimation and Service Request processes to ensure consistency, accuracy, and timeliness during the initial start-up period; and b. Application Development productivity requirements that Vendor must meet during the initial start-up period for the Application Development work to minimize work defects and ensure timeliness of product delivery.
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Application Development Service Level Requirements					
Service Type	Service Measure	Performance Target	Minimum Performance %		Measurement Interval
			Months 1-6	Month 7 Fwd	
Project Estimation Methods and Tools Used for Cost and Schedule	Target	100% of projects	100%	100%	Monthly

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Application Development Service Level Requirements					
Service Type	Service Measure	Performance Target	Minimum Performance % Months 1-6	Month 7 Fwd	Measurement Interval
Project Estimation (actual cost vs. estimated cost)	Target Cost	Actual Estimate following completion of requirements definitions phase	Actual - Not more than +/- 15% of estimate	Actual - Not more than +/- 10% of estimate	Monthly
Service Requests	Target Time	Deliver proposal within an agreed schedule	90%	95%	Monthly
Milestone Completion – Milestones on the Critical Path	Completion Date	Completion of milestones by agreed upon scheduled completion date	90%	95%	Weekly
Milestone Completion – All Milestones NOT on Critical Path	Completion Date	Completion of milestones by agreed upon scheduled completion date	90%	95%	Weekly
Quality	Deviations from Specifications	The number of errors/defects occurring during the agreed-upon period after deployment for the project that is agreed upon by the Parties during the project's requirements definition phase	Less than the agreed upon number	Less than the agreed upon number	On a Project basis
SEI/CMM Level (excluding Applications Software as of the Service Commencement Date and the Current Projects)	Target Level	Level 2 Compliant with Level 3 Characteristics	70% of projects	95% of projects	Annually
	Formula	Performance = Transactions completed within required time/Total Transactions			
	Reporting Interval	Monitor Continuously, Report Monthly			
	Measurement Tool	Project status will be monitored and reported using Microsoft Project; Quality (defects) will be tracked in Vendor's internal defect tracking tool			

Table 17. Application Operations and Maintenance Service Levels

DEFINITION	Application Operations and Maintenance Service Level requirements are the performance metrics related to the Services that Vendor must provide on an ongoing basis in support of production applications in response to reported work defects and requests for changes in the Internal Applications.
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Application Operations and Maintenance Service Level Requirements					
Service Type	Service Measure	Performance Target	Minimum Performance %		Measure ment Interval
			Months 1-6	Month 7 Fwd	
Availability of Application	Availability	Scheduled uptime as defined by VITA per application	99%	99%	Daily
Service Requests	Target Time	Agreed upon delivery schedule	90%	95%	Monthly
Quality (excludes COTS software)	Deviations	The number of errors/defects occurring during the agreed-upon period after deployment of the maintenance that is agreed upon by the Parties	Less than the agreed upon number	Less than the agreed upon number	
SEI/CMM Level (excluding Applications Software as of the Service Commencement Date and the Current Projects)	Target Level	Level 2 Compliant with Level 3 Characteristics	70% of projects	95% of projects	Annually
	Formula	Performance = Transactions completed within required time/Total Transactions			
	Reporting Interval	Monitor Continuously, Report Monthly			
	Measurement Tool	Peregrine; HP OpenView			

4.4 Reports

Vendor shall provide written reports to Commonwealth regarding Vendor's compliance with the Service Levels specified in Section 4.3. Samples of such reports are attached hereto as Addendum 5 to this Appendix 2.

5.0 Referenced SOW Appendices and SOW Schedules

APPENDIX 2 TO SCHEDULE 3.3 TO THE COMPREHENSIVE INFRASTRUCTURE AGREEMENT
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SOW Addenda	Description
Addendum 1*	VITA-Specified Commonwealth Facilities
Addendum 2*	Specific Development Environment Components
Addendum 3*	Generic Development Environment Components
Addendum 4	Statement of Technical Approach
Addendum 5	Sample Reports for Internal Applications Services

* The Parties shall mutually agree upon these Addenda during the Interim Phase